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If you are not counted, you don't count: Estimating the number of African-American Men who have Sex with Men in San Francisco.

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INTRODUCTION: The HIV epidemic has disproportionately affected African-American (AA) men who have sex with men (MSM). Resource allocation for programs targeting key populations such as AA MSM require reliable estimates of their numbers. Current population size estimation (PSE) methods rely on assumptions that are difficult to meet, potentially producing large biases.

METHODS: We applied a new method to estimate the number of AA MSM in San Francisco (SF) using a respondent-driven sampling (RDS) survey. The approach uses respondents' self-reported network size (i.e. the number of other AA MSM known to them in SF), along with a specification of the prior knowledge about the population size, to model the total size of the target population based on their probability of recruitment. A Bayesian approach is used to quantify the amount of information on population size available in the survey. The plausibility of the resulting estimate was corroborated against an independent estimate of all MSM in SF and HIV case reporting data.

RESULTS: 259 AA MSM were recruited in the RDS survey. The method calculated a median of 6,230 AA MSM living in SF (95% CI 1,984–35,545). The prevalence of diagnosed HIV in the survey (17.3%) projects 1,078 known HIV cases among AA MSM, comparable to the 1,170 actually reported to city's surveillance system. A previous independent survey estimating 66,487 total MSM in SF, 6.1% AA, estimates 4055 AA MSM.

CONCLUSIONS: The new method produced a robust, plausible, and consistent population size estimate for AA MSM. Given that RDS surveys are frequently done in many hidden populations worldwide, the method provides a simple, appealing tool to rapidly produce estimates of the size of high risk populations – a fundamental public health measure that has been scarce for much of the HIV epidemic. It is a useful complement to existing methods, especially when only RDS data are available.

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